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TEACHING AND LEARNING

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STUDENTS PERCEPTIONS OF LARGE CLASSES
PART III

The previous 2 newsletters in this series have presented a summary of students' perceptions of large classes, and have also discussed the relationship between class size and learning. In this final newsletter of the term, we would like to present a few alternatives to 'traditional' teaching methods which seem particularly appropriate for large classes and help deal with some of the problems previously identified by students. For us, a large class is one with more than 50 students.

Following are descriptions of two methods of teaching large classes that have been successfully implemented in other universities. One method offers a variety of possible learning modes from which students can pick and choose; the other provides detailed and frequent feedback to students through use of a computer.

MULTI-METHOD APPROACH TO TEACHING LARGE CLASSES

If you believe, as Marcel Goldschmidt, that students need to be active sometimes, that it is beneficial for there to be an exchange amongst students themselves and that there are important differences between students that need to be recognized, then you may be interested in the method he used to teach a course in Psychology for 300 students at McGill. At the beginning of the course he described each of the four different options available - discussion, seminar, learning cell and essay - and asked the students to choose the one they found personally most suitable.

In the discussion groups six to twelve students met twice a week for one hour. They chose a topic and specific reading assignments before each meeting. In addition to the reading, they prepared questions and comments for the discussion.

In the seminar group, three to four students individually prepared a short five-minute paper which they presented to the group of ten to twelve students in each of the two weekly meetings. Each presentation was followed by a group discussion.

The third option was a learning-cell approach. Pairs of students were formed to interact with each other during each of the two weekly one-hour sessions. The pairs were changed each hour so that students had the opportunity to work with all of the other students in the group of 10 or 12. The two students in a cell can either both read the same material or choose different topics and prepare a series of questions. The learning cell approach approach can take either of two forms:

- in the first situation, student A asks his first question and student B attempts to answer and then B asks his first question which student A will try to answer. What develops is a rather rapid flip-flop and intensive exchange between the two students throughout the hour. In the second alternative student A first teaches the essence of his material to student B and then asks his questions. At the mid-point of the hour, they reverse their roles; student B presents his material and asks questions and student A tries to answer.

The fourth option, the essay option, involved few meetings with other students, but a great deal of independent reading and the preparation of a long essay. Students would only meet four times during the course to discuss their outline, two progress reports and the summary of their conclusions, respectively.

The course was a half-course on Personality. It was given in the Fall and repeated in the Spring. Four graduate students assisted Marcel in supervising and evaluating the students and each instructional option.

A great deal of data was collected in order to assess the effectiveness of this approach. A personality test (CPI), an objective achievement test on the subject matter of the course, a questionnaire on student background characteristics were all given at the beginning of the course. On these measures no significant differences between the students in the four options emerged.

During the courses students were asked to check off their personal feeling about the course after each meeting on a 10 point 'Morale barometer'. Towards the end of the course the students took a final examination based on a text book which was not discussed in any of the four options and was in addition to the work done there. Finally, all students filled out a long questionnaire which permitted subjective evaluation of all important aspects of the course.

It is impossible to list all the findings here, but a few representative results are presented below:

- Morale was high in all four

options. The average ratings for the entire class on the 10 point scale ranged from 7.2 for the essay option to 8.2 for the learning cell option.

- the students in the learning-cell option achieved the highest scores on the unannounced essay examination.

- No significant differences were found between the four groups on the final examination which was independent of the work done inthe four learning options.

- Peer and self evaluations of achievement were highest for the learning cell.

TEACHING INFORMATION PROCESSING SYSTEM*

What costs less than a dollar per student per semester, makes a faint humming sound, and shows promise of becoming one of the decade's most effective innovations in undergraduate education?

TIPS is the answer, according to research pointing to the success of the Teaching Information Processing System, a computer-assisted teaching tool developed at the University of Wisconsin-Madison under a grant from the Exxon Education Foundation.

Allen C. Kelly, designed TIPS as a way to bridge the communications gap that exists in large classes, particularly where students' abilities and interests span a wide spectrum.

"Using conventional teaching methods," says Kelley, "it is all but impossible for the professor with a large class to know how well his students are doing. The relatively small number of professor-student contacts fail to give an overall picture. As a result, the professor tends to aim his lectures and assignments at an imaginary 'average' student - and often succeeds in boring students above that average and confusing those below it. The problem is how to individualize instruction: to reach each student with a level of material geared to his particular requirments, and to reach him in time to do some real good. By gathering data on student progress at frequent intervals and using this information to adjust instruction to individual needs, abilities, and interests, TIPS helps the teacher to keep both himself and his students on the right track."

Every week or two, each student in a TIPS class is invited to take five or ten minutes to complete a multiple choice 'survey' designed to measure his grasp of basic course concepts. The surveys are not used for grading. Their purpose is to diagnose student difficulties so that remedies may be prescribed before examinations take place. Participation in these appraisals-typically administered at the close of a regular lecture session - is voluntary.

Survey responses are entered on specialized forms suitable for machine processing. These are fed directly into a computer, which evaluates them against "decision rules"

previously prepared by the professor. From these data the computer produces separate reports for the professor, his teaching assistants (TA'S), and each student.

The individual student reports, available within three or four hours, tell each student precisely how he performed. In addition, they recall weaknesses revealed in earlier surveys, suggest ways in which past and present deficiencies might best be overcome, and lay out individually tailored assignments for the period immediately ahead.

Assignments may vary considerably from student to student.

A learner who has performed well may receive an optional assignment or required work at a higher level for extra course credit.

A student who has demonstrated a lack of understanding of one particular concept is likely to be assigned work specifically calculated to overcome that shortcoming.

A student whose performance has been consistently poor may be asked to attend review sessions, while a student whose performance has been outstanding may be offered the option of undertaking a special project or tutoring low-achieving students in lieu of taking the midterm examination.

The reports prepared for teaching assistants contain information to help them appraise the performance of their individual sections, including a detailed statistical analysis of responses both by question groupings (broad concepts) and individual problems.

The professor's report is similar to those prepared for his teaching assistants, but reflects a consolidated profile of the entire class.

Using TIP'S information, the professor and his TAS can readily modify their teaching strategy to eliminate weaknesses and capitalize on strengths. By spending less time on concepts that are clearly understood and more on those that are not, scarce lecture and section time can be allocated more effectively. Moreover, by freeing better performers from routine assignments and allowing them to pursue more challenging work the system more nearly meets the educational needs of individual students, reduces grading time, and makes it possible for TAS to give closer attention to those students who are most seriously in need of help.

Rather than depersonalizing education, TIPS uses the computer to bring teaching and student closer together. Rather than limiting his options, the system actually increases the professor's flexibility in shaping and refining his approaches to teaching. The proessor has complete freedom in deciding when a survey is to be given, what for it will take, and what 'decision rules' will govern the generation of individual assignments. Instead of dictating a particular teaching methodology, TIPS provides the teacher with prompt and objective information on individual student knowledge -

information that he may use in any way he chooses. This choice may be made by different professors on the basis of quite diverse educational philosophies and can accomodate an almost infinite range of individual teaching styles.

This is not, of course, to say that TIPS offers any panacea or any sure fire guarantee of success. As with other teaching tools, the value of the system must ultimately depend upon how it is used-upon the sensitivity and skill of the proessor in designing adequately discriminating survey questions; upon the empathy and insight he brings to the establishm;ent of the 'decision rules' which are fed into the computer program; and upon the creative imagination with which he employs the system to regain, in some small way, the intimate and informal ideal of teaching and student perched opposite one another on the two ends of a log.

Some research would be required on our part in order to determine whether Concordia could adapt the TIPS programs. However, we would like to remind you that every year the Learning Developmment Office has some funds available to be awarded as Teaching Development Grants. We would be pleased to work with professors interested in developing proposals in these areas and to support their proposals before the committee that decides grants.

REFERENCES

1. Instructional Options: 'Adapting the Large University Courses to Individual Differences' by Marcel L. Goldschmid. Learning and Development Newsletter, February 1970 Vol. 1, No. 5.

2. 'The Occasional', Exxon Education Foundation, December 1973.

TEACHING DEVELOPMENT SERVICE

Are you discouraged about your teaching? Wondering exactly what you could be doing to improve your interactions with students? Eager to receive some feedback? Now is the time to think about next term.

The Teaching Development Service continues to offer an individualized teaching consultation service to faculty who are interested in analyzing and improving their teaching effectiveness. This is a completely confidential service.

For more information please call Jane Magnan or Ron Smith at locals 397 or 695.

INDIVIDUAL SUMMER COURSE EVALUATIONS

If you would like to collect some information from your students on how well your course is going we would be pleased to assist you by providing questionnaires, processing them and sending the results only to you. Please contact our Office at local 397 or 695 for further information.